

**STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
895 Aerovista Place, Suite 101
San Luis Obispo, California 93401-7906**

**RESOLUTION NO. R3-2002-0063
(REVISED MAY 16, 2003)
AMENDING THE WATER QUALITY CONTROL PLAN
FOR THE CENTRAL COAST BASIN
TO INCLUDE
SAN LORENZO RIVER TOTAL MAXIMUM DAILY LOAD AND IMPLEMENTATION PLAN
FOR SEDIMENT INCLUDING
CARBONERA CREEK, LOMPICO CREEK AND SHINGLE MILL CREEK**

The California Regional Water Quality Control Board, Central Coast Region hereby finds:

1. The California Regional Water Quality Control Board, Central Coast Region (Regional Board), adopted the Water Quality Control Plan for the Central Coastal Basin (Basin Plan), on September 8, 1994. The Basin Plan includes beneficial use designations, water quality objectives, implementation plans for point source and nonpoint source discharges, and statewide plans and policies.
2. The Regional Board periodically revises and amends the Basin Plan. The Regional Board has determined the Basin Plan requires further revision and amendment to incorporate a San Lorenzo River Total Maximum Daily Load (TMDL) and Implementation Plan for Sediment, including Carbonera Creek, Lompico Creek, and Shingle Mill Creek.
3. The Regional Board proposes to amend the Basin plan by inserting amendments into Chapter Four, Section IX Total Maximum Daily Loads.
4. Section 303(d) of the Clean Water Act requires States to identify and to prepare a list of water bodies that do not meet water quality objectives and then to establish load and waste load allocations, or a TMDL, for each water body, which will ensure attainment of water quality objectives, and then to incorporate those allocations into their Basin Plans.
5. The San Lorenzo River, Carbonera Creek, Lompico Creek, and Shingle Mill Creek were identified as impaired by sediment on the 1998 Clean Water Act Section 303(d) list of impaired water bodies. Therefore, the Regional Board is required to adopt a TMDL for those water bodies and incorporate the TMDL and associated Implementation Plan into the Basin Plan. (40 CFR 130.6(c)(1), 130.7, Water Code section 13242).
6. The San Lorenzo River, Carbonera Creek, Lompico Creek, and Shingle Mill Creek are located entirely within Santa Cruz County.

The TMDL report contains a Problem Statement, Source Analysis, Numeric Targets, Total Maximum Load, Load Allocation, an Implementation Plan, and a Monitoring Plan.

8. The Problem is as follows: The natural processes of erosion and sedimentation in the San Lorenzo River Watershed have been accelerated due to anthropogenic watershed disturbances. The San Lorenzo

River and its tributaries, Carbonera Creek, Lompico Creek and Shingle Mill Creek exceed narrative water quality objectives for settleable materials because beneficial uses associated with anadromous fisheries have been adversely impacted by sediment. Studies conducted by various authors have concluded that erosion rates are accelerated beyond natural rates. These studies have also documented and quantified the decline in anadromous fisheries and the quality of fish habitat. Excessive sedimentation has interfered with the beneficial uses of these waterbodies including, Fish and Wildlife (RARE, MIGR, SPWN, WILD).

9. The Source of sediment can be described by source category, and by subwatershed. Contributing sources include: Timber Harvest Plan (THP) Roads, Public and Private Roads, Active and Recent THP Parcels, Other Urban and Rural Lands, Mass Wasting, and Channel/Bank Erosion. Sediment loading in the 15 subwatersheds ranges from an estimated 877 to 54,836 tons per year. Sediment loading to the San Lorenzo River is approximately 419,369 tons per year. The Upper San Lorenzo River, Kings Creek, Ben Lomond, Bear Creek, and Zayante Creek subwatersheds each contribute more than ten percent of the total loading. Virtually all controllable sediment comes from non-point sources, as well as land uses subject to regulation under NPDES stormwater permits, and Waste Discharge Requirements.
10. The TMDL is: The overall target for the San Lorenzo River Watershed is a 27 percent reduction in the estimated current loading. This results in TMDLs for the San Lorenzo River of 306,266 tons/year; for Shingle Mill Creek, 857 tons/year; for Carbonera Creek, 11,728 tons/year; and for Lompico Creek, 9,542 tons/year. The TMDL for each waterbody is allocated to the source categories identified in finding 9, above. The allocations are based on source reductions attainable through implementation of management practices and other related measures.
11. Because the sediment objectives in the Basin Plan are narrative, rather than numeric, the TMDL report establishes numeric targets as indicators of water quality that are supportive of beneficial uses. The numeric targets serve to interpret the narrative water quality objectives and provide a measure with which to determine if the objectives and the TMDL are being met. Targets are assigned to Residual Pool Volume, Percentage of Fine Particles and Median Diameter of Sediment Particles in Spawning Gravels. The combination of these parameters is considered an effective approach in lieu of directly measuring sediment loading to the listed waterbodies. Furthermore, direct measurement of loads would not characterize the *effect* of those loads on beneficial uses. The parameters selected do characterize effect by targeting specific habitat requirements for aquatic organisms. The selection of these targets does not preclude efforts to directly measure loading, however the natural variability inherent in annual sediment loads in this region is large enough to suggest that clear trends could not readily be identified by data collection in the near term.
12. The TMDL will be achieved by implementing the State Water Resource Control Board's Nonpoint Source Pollution Control Program Plan, Resolution 99-114, adopted December 4, 1999, and on existing or anticipated regulatory activities where responsible dischargers are identified. The Nonpoint Source Plan guides the Regional Board in its control of nonpoint source pollution by implementing the "Three-Tiered Approach." For nonpoint source discharges, the Regional Board will rely upon Tier 1 (self-determined cooperative efforts) to achieve this TMDL as long as proposed actions are implemented and sufficient progress toward attaining the numeric targets is being achieved. At this time implementation emphasizes the activities of the Santa Cruz County Departments of Planning and Public Works, of the Santa Cruz County Resource Conservation District, and of other public and private groups, not currently identified as dischargers responsible for causing erosion, to implement Tier 1, self-determined activities (Implementation Actions C through R in the list of Trackable Implementation Actions in the Amendment). These entities' failure to implement Tier 1, self-determined activities to reduce sedimentation could trigger Board actions, authorized through Section 13267 of the California Water Code, including investigation and identification of individual responsible dischargers (e.g., landowners or public agencies). If necessary, the Regional Board may

rely on enforcement authority, pursuant to California Water Code Section 13304, to require dischargers to clean up and abate sediment discharges and/or prevent the threat of discharges. This portion of the implementation program currently relies on voluntary compliance and so is not regulatory. If, in future years, evaluation of progress indicates regulatory mechanisms are needed to implement actions that will result in attainment of the numeric targets, this will be achieved on a case-by-case basis using existing authority or if necessary, by amending the TMDL implementation program through a Basin Plan amendment.

13. To regulate sediment discharges derived from storm water, implementation relies on National Pollutant Discharge Elimination System (NPDES) general permits, anticipated to be in place by March 2003, covering municipalities and construction activities. Implementation Actions T, U, and V (see following list of Trackable Implementation Actions) identify actions that will be required of entities enrolling in these general permits. These actions will be required pursuant to the terms of the general permits, so this portion of the implementation program also does not impose any new regulatory requirements. If the management practices are not included in these Plans, the Regional Board will work with dischargers to condition the Plans on an individual basis, will consider issuing individual Storm Water permits, or waste discharger requirements, and/or, if necessary take actions to enforce the terms of the permits or waste discharge requirements. The Regional Board will take any such actions on a case-by-case basis using existing authority or if necessary, by amending the TMDL implementation program through a Basin Plan amendment.
14. The TMDL will be evaluated by monitoring the four numeric targets specified in finding 11, above, as well as by tracking progress in implementation of voluntary and required implementation actions. Responsibility for tracking, reporting status, and evaluating the effectiveness of voluntary implementation actions, is shared by the Regional Board and participating members of the San Lorenzo River Technical Advisory Committee. Initially the Regional Board will be responsible for monitoring numeric targets and progress on implementation actions in consultation with the Committee. As more information is obtained concerning sources, locations and rates of sedimentation, TMDL numeric targets and implementation projects may be amended or modified thorough an amendment to the Basin Plan, as appropriate.
15. The Regional Board Staff conducted outreach by coordinating with the San Lorenzo River Technical Advisory Committee and Interested Parties for review and comment on the TMDL report. Public review and comment were solicited after completion of the TMDL report and during the public meeting of this Regional Board on September 20, 2002.
16. The Regional Board submitted the TMDL Report to an external scientific review panel on March 29, 2002 as required by Health and Safety Code Section 57004. The review panel submitted its response to the Regional Board on April 29, 2002. The review panel commented on several specific areas of concern. The Regional Board revised the proposed Basin Plan amendment in response to the comments submitted by the review panel, or prepared a written response, which explained its basis for not incorporating their comments.
17. The TMDL report contains an estimate of the cost of preventing erosion and sedimentation via implementation of Implementation Actions and management practices, pursuant to Public Resources Code, Section 21159 (a)(3)(c). The cost of implementation will be incurred by the implementers and offset with grants, loans, in-kind donations, and matching funds as much as possible.
18. This Basin Plan amendment must be submitted for review and approval by the State Water Resources Control Board and the State Office of Administrative Law (OAL). The TMDL must further be approved by the USEPA. The Basin Plan amendment will become effective upon approval by the State Board and OAL.

19. This amendment meets the "Necessity" standard of the Administrative Procedure Act, Government Code §11353(b).
20. The Regional Board has determined that the TMDL for sediment for the San Lorenzo River, Carbonera Creek, Lompico Creek, and Shingle Mill Creek, is set at levels necessary to attain and maintain the applicable narrative water quality objectives (there are no applicable numeric objectives) with seasonal variations and a margin of safety that takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality (40 CFR 130.7(c)(1)).
21. The basin planning process has been certified as functionally equivalent to the California Environmental Quality Act requirements for preparing environmental documents (Public Resources Code, Section 21000 et seq.) and as such, the required environmental documentation and CEQA environmental checklist have been prepared. Drafts of the Notice of Filing, staff report, environmental checklist, and proposed amendment have been prepared and distributed to interested persons and agencies for review and comment in accordance with Title 23 California Code of Regulations section 3777. All public comments were considered. No significant environmental impacts will result from approval of this Basin Plan amendment.
22. The proposed amendments to the Basin Plan were developed in accordance with California Water Code Section 13240 et seq.
23. Notice of public hearing was given by advertising in newspapers of general circulation within the Region and by mailing a copy of the notice to all persons requesting such notice and applicable government agencies.
24. The amendment to the Basin Plan will result in no potential adverse effect, either individually or cumulatively, on wildlife and so is exempt from fee payments to the Department of Fish and Game under the California Fish and Game Code.
25. On September 20, 2002 in Salinas, California, the Regional Board held a public hearing and heard and considered all public comments and evidence in the record and adopted Resolution no. R3-2002-0063.
26. On March 17, 2003, State Board returned the Administrative Record to the Regional Board with a memo stating that Regional Board adoption procedures did not comply with section 3777 of Title 23 California Code of Regulations, which requires consideration of reasonable alternatives to the proposed amendment that would achieve the stated goal.
27. On May 16, 2003, in Watsonville, California, the Regional Board held a public meeting and reheard this item to correct the omission stated above. The Regional Board gave 45 days public notice for this meeting and filing of an environmental document. The Regional Board heard and considered all public comments and evidence in the record.

THEREFORE, BE IT RESOLVED,

- 1 The Regional Board, after considering the entire record, including oral testimony, adopts the Basin Plan amendment shown on "Attachment-Proposed Basin Plan Amendments." The amendment will not take effect until approved by the State Board and the California Office of Administrative Law.
2. The Board's Executive Officer is authorized to submit the amendment to the State Water Resources Control Board (State Board). The State Board is requested to approve the Basin Plan amendment in

accordance with the requirements of sections 13245 and 13246 of the California Water Code, and upon approval, the State Board is requested to transmit the amendment to the California Office of Administrative Law for approval.

- 3 The environmental document prepared by Regional Board staff pursuant to Public Resource Code Section 21080.5 is hereby certified. The Regional Board shall file a CEQA Notice of Decision with the Secretary for Resources. Following approval of the revised Basin Plan by the State Board and the California Office of Administrative Law. A Certificate of Fee Exemption will be included with the Notice of Decision.
4. The Regional Board's Executive Officer is authorized to sign a Certificate of Fee Exemption, since no adverse effect on wildlife results from adoption of this Basin Plan amendment.
5. If during approval process the State Board or the Office of Administrative Law determines that minor, non-substantive corrections to the language of the amendment are needed for clarity or consistency, the Executive Officer may make such changes, and shall inform the Board of any such changes.

I, **Roger W. Briggs, Executive Officer**, do hereby certify the foregoing is a full, true, and correct copy of the resolution adopted by the California Regional Water Quality Control Board, Central Coastal Region, on May 16, 2003.


Roger W. Briggs
Executive Officer

RESOLUTION NO. R3-2002-0063**ATTACHMENT- PROPOSED BASIN PLAN AMENDMENTS**

.. Revise the September 8, 1994 Basin Plan, Chapter Four, as follows:

Add the following to chapter 4 under the section, IX A.

**IX.B SAN LORENZO RIVER TOTAL MAXIMUM DAILY LOAD FOR SEDIMENT
(INCLUDING CARBONERA CREEK, LOMPICO CREEK, AND SHINGLE MILL CREEK)**

This TMDL was adopted by the Regional Water Quality Control Board on May 16, 2003.

This TMDL was approved by:

The State Water Resources Control Board on insert date.

The California Office of Administrative Law on insert date (effective date).

The U.S. Environmental Protection Agency on insert date.

TMDL ELEMENTS**Problem Statement:**

The natural processes of erosion and sedimentation in the San Lorenzo River Watershed have been accelerated due to anthropogenic watershed disturbances. Studies conducted by various authors have concluded that erosion rates were two to four times natural rates. These studies have also documented and quantified the decline in anadromous fisheries and the quality of fish habitat. Excessive Sedimentation has interfered with the beneficial uses of these waterbodies including, Fish and Wildlife (RARE, MIGR, SPWN, WILD).

Numeric Targets (interpretation of the narrative water quality objectives for settleable solids and sediment):

Because the sediment objectives in the Basin Plan are narrative, rather than numeric, this Basin Plan amendment establishes numeric targets as indicators of water quality that are supportive of beneficial uses. The numeric targets serve to interpret the narrative water quality objectives and provide a measure with which to determine if the objectives and the TMDL are being met. The combination of these parameters is considered an effective approach in lieu of directly measuring sediment loading to the listed waterbodies. Attainment of Numeric Targets will be measured over a ten-year rolling time period. Numeric targets for the listed waterbodies and compliance points on tributaries are as follows:

Parameter	Numeric Target ¹
Residual Pool Volume ²	$V^* =$ Mean values ≤ 0.21 Max values ≤ 0.45
Median Diameter (D_{50}) of Sediment Particles in Spawning Gravels	$D_{50} =$ Mean values ≥ 69 mm Minimum values ≥ 37 mm
Percent of Fine Fines (< 0.85 mm) in Spawning Gravels	Percent fine fines $\leq 21\%$
Percent of Coarse Fines (< 6.0 mm) in Spawning Gravels	Percent coarse fines $\leq 30\%$

¹ Target values are for sampling reach(es) within an individual waterbody.

² Residual Pool Volume refers to the portion of a pool in a stream that is available for fish to occupy. Pool habitat is the primary habitat for steelhead in summer. Overwintering habitat requirements include deeper pools, undercut banks, side channels, and especially large, unembedded rocks, which provide shelter for fish against the high flows of winter. V^* gives a direct measurement of the impact of sediment on pool volume. It is the ratio of the amount of *pool volume filled by fine, mobile sediment*, to *total pool volume*. Qualifying pools are those having a gradient less than 5%, a minimum depth twice the riffle-crest depth, a fairly even spacing between tributaries, and are located on streams fifth order or smaller.

Total Maximum Daily Load and Load Allocations

The Total Maximum Daily Load (expressed here as an annual load) was based on reductions necessary to achieve desired conditions of streambed sediment parameters (embeddedness and fraction of sediment particles less than 4mm in diameter). Desired conditions taken from values published in the scientific literature were 27% lower on average for the San Lorenzo River, Carbonera Creek and Shingle Mill Creek, and 24% lower on Lompico Creek, than measured values in these waterbodies, respectively. Load allocations were based on percent attainable reductions in each sediment source category.

Natural background sediment load was not calculated as a separate allocation of the TMDL. The Mass Wasting and Channel/Bank Erosion categories account for natural and anthropogenic loads associated with these processes. The load from Timber Harvest Plan Roads, Public/Private Roads, Timber Harvest Plan Lands and Other Urban and Rural Lands is assumed to be entirely anthropogenically derived and controllable.

Sediment Source Category	Allocations (tons/year)			
	Shingle Mill Creek	Carbonera Creek	Lompico Creek	San Lorenzo River
Upland Timber Harvest Plan (THP) Roads	0	419	362	25,215
Streamside THP Roads on Steep Slopes	0	182	164	10,949
Upland Public/Private Roads	146	1,235	367	13,835
Streamside Public/Private Roads on Steep Slopes	77	135	239	6,178
THP Land	0	23	16	1,057
Other Urban and Rural Land	310	2,622	965	43,368
Mass Wasting	0	4,082	6,440	157,388
Channel/Bank Erosion	324	3,030	989	48,149
Total Allocation = TMDL³	857	11,728	9,542	306,139

Implementation Plan

The sediment load to the San Lorenzo River, Lompico Creek, Carbonera Creek, and Shingle Mill Creek derives from nonpoint sources (NPS) and point sources. As such, implementation to achieve the TMDL will rely on the State's Plan for NPS pollution control (CWC §13369) and on existing and anticipated independent regulatory programs for regulated storm water discharges.

At this time implementation emphasizes the activities of the Santa Cruz County Departments of Planning and Public Works, the Santa Cruz County Resource Conservation District, and other public and private groups, not currently identified as dischargers responsible for causing erosion, to implement self-determined activities (Implementation Actions C through R, see following list, Trackable Implementation Actions). Regional Board staff will meet annually with these "Implementing Parties" identified in the list of Trackable Implementation Actions to provide technical assistance, and to evaluate and track progress (See following Implementation Compliance Schedule). By the end of the first year of implementation, the Regional Board and the implementing parties will establish a time schedule for completion of Trackable Implementation Actions C

³ The term "Total Maximum Daily Load" or "TMDL" is used here for familiarity. The allowable loads for the San Lorenzo River and its tributaries are actually expressed as a Total Annual Loads (tons/year). This expression of load accounts for seasonal variation in sediment loads explained by the seasonality of rainfall in this region of the Central Coast.

through R. If the Regional Board along with implementing parties do not establish the time schedule by the end of year one, Regional Board Staff will present a time schedule for completion of these actions as a Basin Plan Amendment. If the Regional Board determines that the implementing parties have failed to complete these self-determined activities and/or resulting management practices have failed to reduce sedimentation per the time schedule established, Regional Board staff intends to conduct inspections and investigations to identify individual responsible dischargers (e.g., landowners or regulated public agencies). Regional Board staff may rely on Section 13267 of the California Water Code and other appropriate authorities for investigation and identification of individual responsible dischargers. Regional Board staff will also rely on Section 13267 of the California Water Code to require reporting and/or monitoring to determine the level of implementation of management practices to reduce sedimentation. If necessary, the Regional Board may rely on enforcement authority, pursuant to California Water Code Section 13304, to require dischargers to clean up and abate sediment discharges and/or prevent the threat of discharges. The Implementation Actions identified in this Implementation Plan do not identify the specific management practices that will result in sediment reduction. As such the management practices developed through pursuit of the Implementation Actions are not intended to be independently enforceable by the Regional Board. Therefore, the Regional Board will rely on scheduled 3-year reviews to track Implementation Actions and the effectiveness of management practices to determine whether to continue with Tier 1, self-determined implementation. This portion of the implementation program currently relies on voluntary compliance and so is not regulatory. If, in future years, self-determined actions have not been completed, staff will develop a regulatory approach (rather than a self-determined approach) and present a revised implementation plan to the Regional Board as a Basin Plan amendment.

To regulate sediment discharges derived from regulated storm water discharges, implementation relies on National Pollutant Discharge Elimination System (NPDES) general permits covering municipalities and construction activities anticipated to be in place by March 2003. Implementation Actions S, T and U (see following list, Trackable Implementation Actions) identify actions that will be required of entities enrolling in these general permits. These entities are identified as "Responsible Dischargers" on this list. These actions will be required pursuant to the terms of the general permits, so this portion of the implementation program also does not impose any new regulatory requirements. To the extent the discharge is addressed by a Storm Water Permit, the Regional Board anticipates that management practices developed from any of the Implementation Actions (in the list of Trackable Implementation Actions) will be included in Storm Water Management Plans and Storm Water Pollution Prevention Plans. If the management practices are not included in these Plans, the Regional Board will work with dischargers to condition the Plans on an individual basis, will consider issuing individual Storm Water permits or waste discharge requirements, and/or, if necessary take actions to enforce the terms of the permits or waste discharge requirements. The Regional Board will take any such actions on a case-by-case basis using existing authority or if necessary, by amendment of the TMDL implementation program.

Margin of Safety

A margin of safety has been established implicitly in the TMDL calculation through conservative assumptions used in establishing the percent reduction from existing loads necessary to protect beneficial uses.

Monitoring

The TMDL will be evaluated by monitoring the four numeric targets specified above, as well as by tracking progress in implementation of voluntary and required implementation actions. Responsibility for tracking, reporting status, and evaluating the effectiveness of voluntary implementation actions, is shared by the Regional Board and participating members of the San Lorenzo River Technical Advisory Committee. Initially the Regional Board will be responsible for monitoring numeric targets. Any monitoring besides that for numeric targets, including turbidity monitoring by the San Lorenzo Valley Water District and the City of Santa Cruz Water Agency, as well as "comprehensive" monitoring of parameters affecting cold water fisheries conducted by various agencies, will be on a voluntary basis. Monitoring efforts pursuant to existing or anticipated regulatory programs or other voluntary efforts will be evaluated along with monitoring for numeric

targets. The Board will evaluate progress on implementation actions in consultation with the San Lorenzo River Technical Advisory Committee. As more information is obtained concerning sources, locations and rates of sedimentation, TMDL numeric targets and implementation projects may be amended or modified through an amendment to the Basin Plan, as appropriate.

Trackable Implementation Actions to Address Sources of Erosion and Sedimentation

Source Category	Implementation Action	Implementing Party
Roads: Upland and Streamside Timber Harvest Plans	A Increase presence at Pre-Harvest Inspections to 100% of Class I and Class II watercourses (watercourses supporting use for domestic water supply, fish, and/or aquatic habitat for non-fish aquatic species).	Regional Water Quality Control Board (RWQCB)
	B Perform Post-Harvest Inspections 3 to 5 years after harvest on Timber Harvest Plans with Class I and Class II watercourse crossings.	RWQCB
	C Convene a Working Group of federal, state, and local agencies, and timberland owners and foresters to develop specific timber harvesting management practices for the San Lorenzo River Watershed.	National Marine Fisheries Service (NMFS), California Department of Forestry and Fire Protection (CDF), Santa Cruz County (County) Planning, RWQCB, Timber Owners and Foresters
	D Enforce erosion control ordinance following 3-year Timber Harvest Plan maintenance period.	County Planning
	E Develop strategy for more effective enforcement of County code violations pertaining to erosion control and sedimentation prevention throughout the San Lorenzo Watershed.	County Planning
	F RWQCB will review evidence of Timber Harvest Plan Best Management Practices developed pursuant to Section 916.9 of 2001 Forest Practices Act during Pre-Harvest and Post-Harvest Inspections.	CDF, Timber Harvest Plan Submitter, RWQCB
Roads: Upland and Streamside Public/Private	E <i>See above</i>	
	G Create public road database to inventory and prioritize problems for correction.	County Public Works, Caltrans, Cities of Santa Cruz and Scotts Valley
	H Develop a Public Road Maintenance Best Management Practices (BMP) Program.	County Public Works and Planning
	I Improve public road spoils management and disposal: develop spoils disposal site(s) in or near the San Lorenzo Watershed.	County Public Works and Caltrans
	J Assess State Park roads and trails for erosion into San Lorenzo River and tributaries. Develop a program for funding and addressing any identified problems.	California Department of Parks and Recreation
	K Develop and implement private road improvement program.	Santa Cruz Resource Conservation District (RCD)-lead, Natural Resources Conservation Service, County Department of Environmental Health, RWQCB, California Department of Fish and Game, landowners
Developed Parcels: THP Lands	A-F <i>See above</i>	
Developed Parcels: Other Urban and Rural Land	E <i>See above</i>	
	L Evaluate need to revise erosion control provisions in County Grading Regulations and Erosion Control Ordinance to better protect sandy-soil areas.	County Planning
	M Evaluate need to revise erosion control provisions in City of Scotts Valley Grading Regulations and Erosion Control Ordinance to better protect sandy-soil areas.	City of Scotts Valley

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Source Category	Implementation Action	Implementing Party
	N Evaluate need to revise erosion control provisions in City of Santa Cruz Grading Regulations and Erosion Control Ordinance to better protect sandy-soil areas.	City of Santa Cruz
	O Promote improved livestock management practices to reduce discharge of sediment.	RCD, Santa Cruz Horsemen, County Planning, County Environmental Health Services, Livestock Owners
	P Implement education programs and modify policies and procedures to improve riparian corridor protection, maintain channel integrity, implement alternatives to hard bank protection, and retain woody material.	County Planning, DFG, Cities
Mass Wasting	Q Develop strategy to reduce erosion from discrete sources, including Mount Hermon slide, Bean Creek Road slides, McEnery Road, Skypark, Rancho Rio and Monte Fiore.	County, City of Scotts Valley
	R Develop strategy to address accelerating the mitigation of quarry impacts at Hanson Aggregates site.	County Planning, California Division of Mines and Geology
Streambanks	A-H, J-N, P See above	
Source Category	Implementation Action	Responsible Dischargers
All Roads, Developed, and Developing Parcels	S Develop and implement Storm Water Management Plans (SWMPs) and Storm Water Pollution Prevention Plans (SWPPPs) consistent with NPDES Phase II Storm Water regulations.	County Planning and Public Works, City of Santa Cruz, City of Scotts Valley, construction site operators and owners.
	T Identify the San Lorenzo River Watershed as a priority for site inspection and enforcement of control measures in SWMPs and SWPPPs. Establish mechanism by which operators and owners of one-acre and greater construction projects are notified of the requirement to prepare SWPPPs.	County Planning and Public Works, City of Santa Cruz, City of Scotts Valley, construction site operators and owners.
	U Consider incorporation of sediment control programs/projects into SWMPs and SWPPPs.	County Planning and Public Works, City of Santa Cruz, City of Scotts Valley, construction site operators and owners.

Implementation Compliance Schedule

At-End of Implementation Year	IMPLEMENTATION MILESTONE	MONITORING ACTIVITY ⁴
	<i>San Lorenzo River Mainstem and Tributaries</i>	<i>San Lorenzo River Mainstem and Tributaries</i>
1	Regional Board (RB) staff and San Lorenzo River Technical Advisory Committee (SLR TAC) meet to: a) review progress on implementation actions; b) adopt Comprehensive Monitoring Program; and c) establish time schedules for Implementation Actions. RB and County staff meet to review inclusion of high priority status of San Lorenzo Watershed in Stormwater Management Plan.	Refine sampling strategy for comprehensive monitoring plan; Turbidity by water agencies.
2	RB staff and SLR TAC meet to review progress on implementation actions and monitoring.	Full suite of Numeric Target Parameters at compliance points; Turbidity by water agencies.
3	Implementing Parties submit report on progress of actions; RB staff and SLR TAC meet to review progress on implementation actions and monitoring; RB staff consider modifications to Trackable Implementation Actions; RB requests implementation tracking report from Implementing Parties if not provided;	Turbidity by water agencies.
4	RB staff and SLR TAC meet to review progress on implementation actions;	Turbidity by water agencies.
5	RB staff and SLR TAC meet to review progress on implementation actions;	Full suite of Numeric Target Parameters at compliance points; Turbidity by water agencies.
6	Implementing Parties submit report on progress of actions; RB staff and SLR TAC meet to review progress on implementation actions and monitoring; RB staff consider modifications to Trackable Implementation Actions; RB requests implementation tracking report from Implementing Parties if not provided;	Turbidity by water agencies.
7	RB staff and SLR TAC meet to review progress on implementation actions;	Turbidity by water agencies.
8	RB staff and SLR TAC meet to review progress on implementation actions;	Full suite on compliance points; Turbidity by water agencies.
9	Implementing Parties submit report on progress of actions; RB staff and SLR TAC meet to review progress on implementation actions and monitoring; RB staff consider modifications to Trackable Implementation Actions; RB requests implementation tracking report from Implementing Parties if not provided;	Turbidity by water agencies.
10	RB staff and SLR TAC meet to review progress on implementation actions;	Turbidity by water agencies.
11	RB staff and SLR TAC meet to review progress on implementation actions; RB staff calculate 10-year rolling average of streambed sediment data and turbidity;	Full suite of Numeric Target Parameters at compliance points; Turbidity by water agencies.

⁴ Direct measurement of sediment loading is not proposed for this TMDL. Parameters characterizing the effect of loading are to be measured instead, and are identified as Numeric Targets. This 25-year schedule for achieving the TMDL acknowledges that implementation actions taken in the near term are expected to take years to produce a response as measured through Numeric Target monitoring.

At End of Implementation Year	IMPLEMENTATION MILESTONE	MONITORING ACTIVITY
12	Implementing Parties submit report on progress of actions; RB staff and SLR TAC meet to review progress on implementation actions and monitoring; RB staff consider modifications to Trackable Implementation Actions; RB requests implementation tracking report from Implementing Parties if not provided; RB staff calculate 10-year rolling average of streambed sediment data and turbidity;	Turbidity by water agencies.
13	RB staff and SLR TAC meet to review progress on implementation actions; RB staff calculate 10-year rolling average of streambed sediment data and turbidity;	Turbidity by water agencies.
14	RB staff and SLR TAC meet to review progress on implementation actions; RB staff calculate 10-year rolling average of streambed sediment data and turbidity;	Full suite of Numeric Target Parameters at compliance points; Turbidity by water agencies.
15	Implementing Parties submit report on progress of actions; RB staff and SLR TAC meet to review progress on implementation actions and monitoring; RB staff consider modifications to Trackable Implementation Actions; RB requests implementation tracking report from Implementing Parties if not provided; RB staff calculate 10-year rolling average of streambed sediment data and turbidity;	Turbidity by water agencies.
16-24	<i>Repeat as above with 1- and 3-year milestones</i>	
25	Numeric Targets Achieved; Load reduction Achieved	